Exhibit 300: Capital Asset Plan and Business Case Summary

Part I: Summary Information And Justification (All Capital Assets)

Section A: Overview (All Capital Assets)

1. Date of Submission:	4/10/2009
2. Agency:	Department of Energy
3. Bureau:	Energy Programs
4. Name of this Capital Asset:	SC Lattice Quantum ChromoDynamics Computing (LQCD)
5. Unique Project (Investment) Identifier: (For IT investment only, see section 53. For all other, use agency ID system.)	019-20-01-21-01-1032-00
6. What kind of investment will this be in FY 2010? (Please NOTE: Investments moving to O&M in FY 2010, with Planning/Acquisition activities prior to FY 2010 should not select O&M. These investments should indicate their current status.)	Mixed Life Cycle
7. What was the first budget year this investment was submitted to OMB?	FY2006

8. Provide a brief summary and justification for this investment, including a brief description of how this closes in part or in whole an identified agency performance gap:

The LQCD Computing Project is part of the DOE Office of Science (SC) High Energy Physics (HEP) & Nuclear Physics (NP) programs to accomplish SC strategic goal (SG) 6 (Deliver computing for the frontiers of science) and DOE SGs 3.1 (Scientific Breakthroughs) & 3.2 (Foundations of Science) to further the President's "Competitive" Initiative. QCD is the theoretical framework for large experimental programs in HEP & NP, and its properties can only be determined through large scale computer simulations. The LQCD Computing Project identified the need to dedicate hundreds of teraflop-years of sustained integrated computing power to the study of QCD, and other strongly coupled gauge theories expected to be of importance in the interpretation of experiments planned for the LHC. To achieve the FY10 capacity goal, the LQCD Project will utilize the QCDOC supercomputer located at the Brookhaven National Laboratory and the LQCD clusters located at the Fermi National Accelerator Laboratory and Thomas Jefferson National Accelerator Facility along with the hardware to be acquired in FY10 in this project. The HEP, NP, and ASCR (Advanced Scientific Computing Research) funded SciDAC-1 and SciDAC-2 LQCD software projects provide highly optimized LQCD codes and the SciDAC-2 project is developing new algorithms that will increase the cost effectiveness of the hardware acquired by this investment. This investment was scheduled to end in FY09. Due to management decision, the LQCD investment is being exteneded through FY2014. The investment provides funds for the acquisition and operation of new hardware, and for the operation of the existing QCDOC supercomputer and LQCD clusters through the end of their life cycle. Existing LQCD distributed cluster systems and supercomputers comply with the DOE technical architecture, as will all new hardware acquired in this investment. These systems run physics applications built using optimized LQCD libraries developed by the SciDAC projects. This investment supports the Scientific and Technological Research and Innovation sub-function of the General Science and Innovation LoB of the Services for Citizens BRM. In particular, LQCD provides computational resources as "Services for Citizens" (001109026) in "Research for Development" (002202069).

9. Did the Agency's Executive/Investment Committee approve this request?	Yes
a. If "yes," what was the date of this approval?	12/24/2008
10. Did the Project Manager review this Exhibit?	Yes
11. Contact information of Program/Project Manager?	
Name	Kogut, John B
Phone Number	301-903-1298
Email	john.kogut@science.doe.gov
a. What is the current FAC-P/PM (for civilian agencies) or DAWIA (for defense agencies) certification level of the program/project manager?	Waiver Issued
b. When was the Program/Project Manager Assigned?	9/30/2006
c. What date did the Program/Project Manager receive the FAC-P/PM certification? If the certification has not been issued, what is the anticipated date for certification?	9/8/2009
12. Has the agency developed and/or promoted cost	Yes

effective, energy-efficient and environmentally sustainable techniques or practices for this project?	
a. Will this investment include electronic assets (including computers)?	Yes
b. Is this investment for new construction or major retrofit of a Federal building or facility? (answer applicable to non-IT assets only)	No
1. If "yes," is an ESPC or UESC being used to help fund this investment?	
2. If "yes," will this investment meet sustainable design principles?	
3. If "yes," is it designed to be 30% more energy efficient than relevant code?	
13. Does this investment directly support one of the PMA initiatives?	Yes
If "yes," check all that apply:	Competitive Sourcing Expanded E-Government
a. Briefly and specifically describe for each selected how this asset directly supports the identified initiative(s)? (e.g. If E-Gov is selected, is it an approved shared service provider or the managing partner?)	LQCD supports the Expanded e-Government and Competitive Sourcing initiatives by continually advancing scientific research capabilities through increased computing capacity, enabling scientists to utilize cutting edge technology to solve the toughest scientific issues, outsourcing maintenance and operations activities to GOCO Laboratories, and utilizing a competitive award process among leading technology providers
14. Does this investment support a program assessed using the Program Assessment Rating Tool (PART)? (For more information about the PART, visit www.whitehouse.gov/omb/part.)	No
a. If "yes," does this investment address a weakness found during a PART review?	
b. If "yes," what is the name of the PARTed program?	
c. If "yes," what rating did the PART receive?	
15. Is this investment for information technology?	Yes

If the answer to Question 15 is "Yes," complete questions 16-23 below. If the answer is "No," do not answer questions 16-23.

For information technology investments only:

16. What is the level of the IT Project? (per CIO Council PM Guidance)	Level 1
17. In addition to the answer in 11(a), what project management qualifications does the Project Manager have? (per CIO Council PM Guidance)	(1) Project manager has been validated as qualified for this investment
18. Is this investment or any project(s) within this investment identified as "high risk" on the Q4 - FY 2008 agency high risk report (per OMB Memorandum M-05-23)	No
19. Is this a financial management system?	No
a. If "yes," does this investment address a FFMIA compliance area?	
1. If "yes," which compliance area:	
2. If "no," what does it address?	

b. If "yes," please identify the system name(s) and system acronym(s) as reported in the most recent financial systems inventory update required by Circular A-11 section 52

20. What is the percentage breakout for the total FY2010 funding request for the following? (This should total 100%)

Hardware	64
Software	1
Services	33

Other	2
21. If this project produces information dissemination products for the public, are these products published to the Internet in conformance with OMB Memorandum 05-04 and included in your agency inventory, schedules and priorities?	N/A

22. Contact information of individual responsible for privacy related questions:

Name	Boroski, William
Phone Number	680-840-4344
Title	Contractor Project Manager
E-mail	boroski@fnal.gov
23. Are the records produced by this investment appropriately scheduled with the National Archives and Records Administration's approval?	Yes

Question 24 must be answered by all Investments:

24. Does this investment directly support one of the GAO High Risk Areas?	No

Section B: Summary of Spending (All Capital Assets)

1. Provide the total estimated life-cycle cost for this investment by completing the following table. All amounts represent budget authority in millions, and are rounded to three decimal places. Federal personnel costs should be included only in the row designated "Government FTE Cost," and should be excluded from the amounts shown for "Planning," "Full Acquisition," and "Operation/Maintenance." The "TOTAL" estimated annual cost of the investment is the sum of costs for "Planning," "Full Acquisition," and "Operation/Maintenance." For Federal buildings and facilities, life-cycle costs should include long term energy, environmental, decommissioning, and/or restoration costs. The costs associated with the entire life-cycle of the investment should be included in this report.

Table 1: SUMMARY OF SPENDING FOR PROJECT PHASES (REPORTED IN MILLIONS)
(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY-1 and earlier	PY 2008	CY 2009	BY 2010	BY+1 2011	BY+2 2012	BY+3 2013	BY+4 and beyond	Total
Planning:	0.139	0.119	0.123	0.048	0.05	0.052	0.108	0	0.639
Acquisition:	3.442	1.63	0.675	2.055	2.059	2.064	2.068	2.125	16.118
Subtotal Planning & Acquisition:	3.581	1.749	0.798	2.103	2.109	2.116	2.176	2.125	16.757
Operations & Maintenance:	1.419	0.751	0.902	1.071	1.207	1.363	1.321	1.584	9.618
TOTAL:	5.000	2.500	1.700	3.174	3.316	3.479	3.497	3.709	26.375
Government FTE Costs should not be included in the amounts provided above.									
Government FTE Costs	0.022	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.099
Number of FTE represented by Costs:	1	1	1	1	1	1	1	1	8

Note: For the multi-agency investments, this table should include all funding (both managing partner and partner agencies). Government FTE Costs should not be included as part of the TOTAL represented.

2. Will this project require the agency to hire additional FTE's?	No

a. If "yes," How many and in what year?

3. If the summary of spending has changed from the FY2009 President's budget request, briefly explain those changes:

This investment was scheduled to end in FY09. Due to management decision, the LQCD investment is being extended through FY 2014 to continue the study of QCD, and other strongly coupled gauge theories. The summary of spending reflects this change.

Section C: Acquisition/Contract Strategy (All Capital Assets)

1. Complete the table for all (including all non-Federal) contracts and/or task orders currently in place or planned for this investment. Total Value should include all option years for each contract. Contracts and/or task orders completed do not need to be included.

Contracts/Task Orders Table: * Costs in millions

Contract or Task Order Number	Type of Contract/ Task Order (In accordance with FAR Part 16)	Has the contract been awarded (Y/N)	If so what is the date of the award? If not, what is the planned award date?	Start date of Contract/ Task Order	End date of Contract/ Task Order	Total Value of Contract/ Task Order ($M)	Is this an Interagency Acquisition? (Y/N)	Is it performance based? (Y/N)	Competitively awarded? (Y/N)	What, if any, alternative financing option is being used? (ESPC, UESC, EUL, N/A)	Is EVM in the contract? (Y/N)	Does the contract include the required security & privacy clauses? (Y/N)	Name of CO	CO Contact information (phone/email)	Contracting Officer FAC-C or DAWIA Certification Level (Level 1, 2, 3, N/A)	If N/A, has the agency determined the CO assigned has the competencies and skills necessary to support this acquisition? (Y/N)
Total Value of Expired Contracts	This is a summation of expired contracts. Guidance was provided by the DOE OCIO to remove expired contracts and sum the contracts in a single line item. The date 1/1/2000 was used because "blank" was not valid	No	1/1/2000	1/1/2000	1/1/2000	5	No	No	No	NA	No	No	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm-fixed Price	No	10/1/2011	10/1/2011	9/30/2012	1.363	No	Yes	No	NA	Yes	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm Fixed Price	No	10/1/2011	10/1/2011	6/30/2012	2.116	No	Yes	Yes	NA	No	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm Fixed Price	No	10/1/2012	10/1/2012	9/30/2013	1.321	No	Yes	No	NA	Yes	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm-fixed Price	No	10/1/2012	10/1/2012	6/30/2013	1.027	No	Yes	Yes	NA	No	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm-fixed Price	No	10/1/2012	10/1/2012	6/30/2013	1.15	No	Yes	Yes	NA	No	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes

Contracts/Task Orders Table: * Costs in millions

Contract or Task Order Number	Type of Contract/ Task Order (In accordance with FAR Part 16)	Has the contract been awarded (Y/N)	If so what is the date of the award? If not, what is the planned award date?	Start date of Contract/ Task Order	End date of Contract/ Task Order	Total Value of Contract/ Task Order ($M)	Is this an Interagency Acquisition? (Y/N)	Is it performance based? (Y/N)	Competitively awarded? (Y/N)	What, if any, alternative financing option is being used? (ESPC, UESC, EUL, N/A)	Is EVM in the contract? (Y/N)	Does the contract include the required security & privacy clauses? (Y/N)	Name of CO	CO Contact information (phone/email)	Contracting Officer FAC-C or DAWIA Certification Level (Level 1, 2, 3, N/A)	If N/A, has the agency determined the CO assigned has the competencies and skills necessary to support this acquisition? (Y/N)
	Firm Fixed Price	No	10/1/2013	10/1/2013	9/30/2014	1.584	No	Yes	No	NA	Yes	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	N/A	Yes
	Firm-fixed Price	No	10/1/2013	10/1/2013	6/30/2014	2.125	No	Yes	Yes	NA	No	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	N/A	Yes
FNAL/TJNAF/ BNL FY08 System Operations	Firm-fixed price	Yes	10/1/2007	10/1/2007	9/30/2008	0.751	No	Yes	No	NA	Yes	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
Planned FY08 Cluster at FNAL	Firm-fixed price	Yes	7/1/2008	7/1/2008	12/30/2008	1.749	No	Yes	Yes	NA	No	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm-fixed price	No	10/1/2008	10/1/2008	9/30/2009	0.902	No	Yes	No	NA	Yes	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm-Fixed Price	No	10/15/2008	10/15/2008	3/1/2009	0.798	No	Yes	Yes	NA	No	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm-fixed Price	No	10/1/2009	10/1/2009	9/30/2010	1.071	No	Yes	No	NA	Yes	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm-fixed Price	No	10/1/2009	10/1/2009	6/30/2010	2.102	No	Yes	Yes	NA	No	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm-fixed Price	No	10/1/2010	10/1/2010	9/30/2011	1.207	No	Yes	No	NA	Yes	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes
	Firm-fixed Price	No	10/1/2010	10/1/2010	6/30/2011	2.109	No	Yes	Yes	NA	No	Yes	Boroski, William	680-840-4344 / boroski@fnal.gov	Level N/A	Yes

2. If earned value is not required or will not be a contract requirement for any of the contracts or task orders above, explain why:

The DOE has determined that this investment does not meet the criteria requiring EVM. Note for the Contracts/Task Orders Table listed above: The host laboratories' M&O contracts include the required security and privacy clauses, and these requirements are satisfied by the laboratories' staff. The host laboratories' M&O contracts are performance-based contracts and include EVM per DOE Order 413.3.

3. Do the contracts ensure Section 508 compliance?	Yes
a. Explain why not or how this is being done?	These task orders are of two types: subcontracts issued by the host laboratories to hardware vendors that cover the purchase of computer hardware and some physical integration only, and funding to the laboratories for the operation of the LQCD computing systems. The host laboratories' M&O contracts include requirements that ensure Section 508 compliance.
4. Is there an acquisition plan which reflects the requirements of FAR Subpart 7.1 and has been approved in accordance with agency requirements?	Yes
a. If "yes," what is the date?	4/30/2008
1. Is it Current?	Yes
b. If "no," will an acquisition plan be developed?	
1. If "no," briefly explain why:	

Section D: Performance Information (All Capital Assets)

In order to successfully address this area of the exhibit 300, performance goals must be provided for the agency and be linked to the annual performance plan. The investment must discuss the agency's mission and strategic goals, and performance measures (indicators) must be provided. These goals need to map to the gap in the agency's strategic goals and objectives this investment is designed to fill. They are the internal and external performance benefits this investment is expected to deliver to the agency (e.g., improve efficiency by 60 percent, increase citizen participation by 300 percent a year to achieve an overall citizen participation rate of 75 percent by FY 2xxx, etc.). The goals must be clearly measurable investment outcomes, and if applicable, investment outputs. They do not include the completion date of the module, milestones, or investment, or general goals, such as, significant, better, improved that do not have a quantitative or qualitative measure.

Agencies must use the following table to report performance goals and measures for the major investment and use the Federal Enterprise Architecture (FEA) Performance Reference Model (PRM). Map all Measurement Indicators to the corresponding "Measurement Area" and "Measurement Grouping" identified in the PRM. There should be at least one Measurement Indicator for each of the four different Measurement Areas (for each fiscal year). The PRM is available at www.egov.gov. The table can be extended to include performance measures for years beyond the next President's Budget.

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
2007	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Customer Benefit	Customer Satisfaction	% of improvement in customer satisfaction rating (Customers rate satisfaction with the service provided on a scale of 1 to 10)	No initial baseline exists to form an originating baseline.	Complete user survey in order to establish baseline customer satisfaction rating.	82% A user survey was conducted in Aug/Sep 2007. Respondents reported an average customer satisfaction rating of 82%.
2007	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Service Coverage	New Customers and Market Penetration	Number of distinct users (includes DOE labs, LQCD and academic communities)	73 (Number of distinct users served by metafacility in FY06)	Increase to 25 (Based on projected FY06 baseline of 20)	77 distinct users served in FY07
2007	GOAL 3.2	Mission and	General Science	Scientific and	% of completed	40^3 x 96:	Increase % of	2 goals (1)

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Business Results	and Innovation	Technological Research and Innovation	necessary improved staggered configurations enabling various physics studies of CKM matrix elements and hadron structure [SC Goals 4, 6] [NP-1]	100% 48^3 x 144 (one quark mass): 50% 48^3 x 144 (second quark mass): 50%	required generated lattices as follows:48^3 x 144 (one quark mass): 100% 48^3 x 144 (second quark mass): 100%	generate 3k and 1875 equilibrated trajectories at quark mass M 61;0.4ms and M 61;0.2ms with lattice spacing 61;0.06 fm. 3K and 1875 generated. Milestone achieved.
2007	GOAL 3.1 Scientific Discovery Achieve the major scientific discoveries that will drive U.S. competitiveness, inspire America, and revolutionize our approaches to the Nation s energy, national security, and environmental quality challenges.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	% of completed improved staggered lattices analyzed for calculation of CKM matrix elements [SC Goals 4, 6] [NP-1]	40^3 x 96 lattices: 100%48^3 x 144 lattices: 0%	Increase percentage of 48^3 x 144 lattices analyzed to 100%	The CKM matrix calculation scientific priorities were changed with additional lattice configuration spacings 0.09 fermis before the 0.06 fm (48^3 x 144) configurations were started. The 0.06 fm calculations are started but not complete.
2007	GOAL 3.1 Scientific Discovery Achieve the major scientific discoveries that will drive U.S. competitiveness, inspire America, and revolutionize our approaches to the Nation s energy, national security, and environmental quality challenges.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	Computer usage, in aggregate integrated TF-Yrs, applied to hybrid calculation of quark structure of nucleon in chiral regime [SC Goals 4, 6]	0.8 teraflops-year	Add an additional 1.0 TF-yrs of integrated usage to bring total to 1.8 teraflops-year	0.733 TF-yrs was devoted to this milestone in FY07.
2007	GOAL 3.1 Scientific Discovery Achieve the major scientific discoveries that will drive U.S. competitiveness, inspire America, and revolutionize our approaches to the Nation s energy, national security, and environmental quality challenges.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	Usage, in aggregate integrated TF-Yrs, for Pentaquark and N* spectroscopy calculations in the chiral regime [SC Goals 4, 6]	0.5 teraflops-year	Add an additional 0.75 TF-yrs of integrated usage to bring total to 1.25 teraflops-year	1.315 TF-yrs was devoted to this milestone in FY07.
2007	GOAL 3.1 Scientific Discovery Achieve the major scientific discoveries that will drive U.S. competitiveness, inspire America, and revolutionize our approaches to the Nation s energy, national security, and environmental quality challenges.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	Computer usage, in aggregate integrated TF-Yrs, applied to calculation of properties of hot hadronic and quark matter in chiral regime [SC Goals 5, 6]	1.0 teraflops-year	Add an additional 1.25 TF-yrs of integrated usage to bring the total to 2.25 teraflops-year	A calculation consuming 2.64 TF-yrs was performed during the course of FY2007, which exceeded the milestone.
2007	GOAL 3.1 Scientific	Mission and Business Results	General Science and Innovation	Scientific and Technological	% of required generated	24^3 x 64 at one quark mass:	24^3 x 64 at a second quark	24^3 x 64 at a second quark

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	Discovery Achieve the major scientific discoveries that will drive U.S. competitiveness, inspire America, and revolutionize our approaches to the Nation s energy, national security, and environmental quality challenges.			Research and Innovation	domain wall lattice configurations [SC Goals 4,6]	100%	mass: 100% 32^3 x 64 at one quark mass: 25%	mass: 100% 32^3 x 64 at one quark mass: 72%
2007	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Quality	Complaints	Increase % of tickets closed within 2 business days	Projected FY06 baseline: 85%	Increase to 90%	98%
2007	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Quality	Errors	% reduction of delivered node hours consumed by jobs (BNL, JLAB, and TJNAF) with an error exit status.	14.5% (Baseline determined from FY06 data)	11.6% (Additional 20% reduction from baseline)	11%
2007	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Security and Privacy	Security	Increase the frequency of vulnerability scans on nodes visible from the Internet performed at each site	6 scans (In FY06 scans were performed every other month (total of 6 per year)	Increase rate of vulnerability scans by 100% to monthly (total of 12 per year)	12 scans
2007	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Effectiveness	IT Contribution to Process, Customer, or Mission	Aggregate computing resources provided by the project expressed as an average of the Asqtad and DWF algorithm performances in Tflops.	8.6 TF. (This capability allows the completion of the physics program planned for 2007.)	Increase to 11.5 TF (= 8.6+ 3.1 (new) - 0.2 (retired))This would establish sufficient capability for the planned 2008 physics program.	11.75 TF
2007	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next	Technology	Reliability and Availability	Availability	% of average machine uptime at the Meta-facility	88%	Increase to 92%	94%

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.							
2008	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Customer Benefit	Customer Satisfaction	Additional % of improvement in customer satisfaction rating (Customers rate satisfaction with the service provided on a scale of 1 to 10)	Rating achieved from FY07 survey results. (estimated at 82%)	Additional 5% improvement over FY07 survey rating.	91%
2008	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Service Coverage	New Customers and Market Penetration	Number of distinct users of the facility (includes DOE labs, LQCD and academic communities)	25	Increase to 30	66
2008	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation	TF-Yrs delivered towards the completion of the 2008 Scientific Program	9.0 TF-Yrs delivered in FY07	Increase to 12.0 TF-Yrs delivered in FY08	12.1 TF-yrs delivered
2008	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Cycle Time and Timeliness	Timeliness	% of tickets closed within 2 business days	90%	Increase to 92%	96%
2008	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory	Processes and Activities	Quality	Errors	Percent of delivered node hours consumed by jobs with an error exit status.	Rating achieved during 2007	Additional 10% reduction from baseline	9%

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	capabilities and infrastructure required for U.S. scientific primacy.							
2008	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Security and Privacy	Security	Increase the frequency of vulnerability scans on nodes visible from the Internet performed at each site	Monthly (total of 12 scans per year)	Increase frequency by 100% to biweekly (total of 24 scans per year)	Vulnerability scans are run daily at all three sites
2008	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Effectiveness	IT Contribution to Process, Customer, or Mission	Aggregate computing resources provided by the project expressed as an average of the Asqtad and DWF algorithm performances in Tflops.	11.5 TF This capability allows the completion of the physics program planned for 2008.	Increase to 15.6 TF (Additional 4.1)	15.6
2008	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Reliability and Availability	Availability	% of average machine uptime at the Meta-facility	92%	Increase to 93%	96.3%
2009	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Customer Benefit	Customer Satisfaction	Additional % of improvement in customer satisfaction rating (Customers rate satisfaction with the service provided on a scale of 1 to 10)	91% (Rating achieved from FY08 survey.)	5% improvement over FY08 survey rating.	Available in Q1FY10
2009	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Service Coverage	New Customers and Market Penetration	Number of distinct users of the facility (includes DOE labs, LQCD and academic communities)	66	Increase to 70	Average number of distinct users over the past year = 79

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
2009	GOAL 3.1 Scientific Breakthroughs - Achieve the major scientific discoveries that will drive U.S. competitiveness; inspire America; and revolutionize approaches to the Nation s energy, national security, and environmental quality challenges.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation				
2009	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Quality	Complaints	% of tickets closed within 2 business days	92%	Increase to 95%	Average through March 2009 = 94%. Final result available in Q1 FY10.
2009	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Quality	Errors	% reduction of delivered node hours consumed by jobs (BNL, JLAB, and TJNAF) with an error exit status.	Rating achieved during FY08	Additional 10% reduction from baseline	Average through March 2009 = 11%. Final results available in Q1 FY10.
2009	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Security and Privacy	Security				
2009	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Effectiveness	IT Contribution to Process, Customer, or Mission				
2009	GOAL 3.2 Foundations of Science Deliver the scientific	Technology	Reliability and Availability	Availability	% of average machine uptime at the Meta-facility	93%	Increase to 95%	Average through March 2009 = 95%. Final result available

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.							in Q1 FY10.
2010	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Customer Benefit	Customer Satisfaction	Customer satisfaction rating (Customers rate satisfaction with the service provided on a scale of 1 to 10)	Rating achieved from FY09 survey	Maintain or exceed FY09 customer satisfaction rating	Available in Q1 FY11
2010	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation				
2010	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Quality	Complaints	% of tickets closed within 2 business days	95%	≥95%	Available in Q1 FY11
2010	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Security and Privacy	Security				
2010	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and	Technology	Effectiveness	IT Contribution to Process, Customer, or Mission				

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.							
2010	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Reliability and Availability	Availability	% of average machine uptime at the Meta-facility	95%	≥95%	Available in Q1 FY11
2011	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Customer Benefit	Customer Satisfaction	Customer satisfaction rating (Customers rate satisfaction with the service provided on a scale of 1 to 10)	Rating achieved from FY10 survey	Maintain or exceed FY10 customer satisfaction rating	Available in Q1 FY12
2011	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation				
2011	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Quality	Complaints	% of tickets closed within 2 business days	95%	≥95%	Available in Q1 FY12
2011	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S.	Processes and Activities	Security and Privacy	Security				

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	scientific primacy.							
2011	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Effectiveness	IT Contribution to Process, Customer, or Mission				
2011	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Reliability and Availability	Availability	% of average machine uptime at the Meta-facility	95%	≥95%	Available in Q1 FY12
2012	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Customer Benefit	Customer Satisfaction	Customer satisfaction rating (Customers rate satisfaction with the service provided on a scale of 1 to 10)	Rating achieved from FY11 survey	Maintain or exceed FY11 customer satisfaction rating	Available in Q1 FY13
2012	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation				
2012	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Quality	Complaints	% of tickets closed within 2 business days	95%	≥95%	Available in Q1 FY13
2012	GOAL 3.2 Foundations of Science Deliver	Processes and Activities	Security and Privacy	Security				

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.							
2012	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Effectiveness	IT Contribution to Process, Customer, or Mission				
2012	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Reliability and Availability	Availability	% of average machine uptime at the Meta-facility	95%	≥95%	Available in Q1 FY13
2013	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Customer Benefit	Customer Satisfaction	Customer satisfaction rating (Customers rate satisfaction with the service provided on a scale of 1 to 10)	Rating achieved from FY12 survey	Maintain or exceed FY12 customer satisfaction rating	Available in Q1 FY14
2013	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation				
2013	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and	Processes and Activities	Quality	Complaints	% of tickets closed within 2 business days	95%	≥95%	Available in Q1 FY14

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.							
2013	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Security and Privacy	Security				
2013	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Effectiveness	IT Contribution to Process, Customer, or Mission				
2013	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Reliability and Availability	Availability	% of average machine uptime at the Meta-facility	95%	≥95%	Available in Q1 FY14
2014	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Customer Results	Customer Benefit	Customer Satisfaction	Customer satisfaction rating (Customers rate satisfaction with the service provided on a scale of 1 to 10)	Rating achieved from FY13 survey	Maintain or exceed FY13 customer satisfaction rating	Available in Q1 FY15
2014	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure	Mission and Business Results	General Science and Innovation	Scientific and Technological Research and Innovation				

Performance Information Table

Fiscal Year	Strategic Goal(s) Supported	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Target	Actual Results
	required for U.S. scientific primacy.							
2014	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Quality	Complaints	% of tickets closed within 2 business days	95%	≥95%	Available in Q1 FY15
2014	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Processes and Activities	Security and Privacy	Security				
2014	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Effectiveness	IT Contribution to Process, Customer, or Mission				
2014	GOAL 3.2 Foundations of Science Deliver the scientific facilities, train the next generation of scientist and engineers, and provide the laboratory capabilities and infrastructure required for U.S. scientific primacy.	Technology	Reliability and Availability	Availability	% of average machine uptime at the Meta-facility	95%	≥95%	Available in Q1 FY15

Section E: Security and Privacy (IT Capital Assets only)

In order to successfully address this area of the business case, each question below must be answered at the system/application level, not at a program or agency level. Systems supporting this investment on the planning and operational systems security tables should match the systems on the privacy table below. Systems on the Operational Security Table must be included on your agency FISMA system inventory and should be easily referenced in the inventory (i.e., should use the same name or identifier).

For existing Mixed-Life Cycle investments where enhancement, development, and/or modernization is planned, include the investment in both the "Systems in Planning" table (Table 3) and the "Operational Systems" table (Table 4). Systems which are already operational, but have enhancement, development, and/or modernization activity, should be included in both Table 3 and Table 4. Table 3 should reflect the planned date for the system changes to be complete and operational, and the planned date for the associated C&A update. Table 4 should reflect the current status of the requirements listed. In this context, information

contained within Table 3 should characterize what updates to testing and documentation will occur before implementing the enhancements; and Table 4 should characterize the current state of the materials associated with the existing system.

All systems listed in the two security tables should be identified in the privacy table. The list of systems in the "Name of System" column of the privacy table (Table 8) should match the systems listed in columns titled "Name of System" in the security tables (Tables 3 and 4). For the Privacy table, it is possible that there may not be a one-to-one ratio between the list of systems and the related privacy documents. For example, one PIA could cover multiple systems. If this is the case, a working link to the PIA may be listed in column (d) of the privacy table more than once (for each system covered by the PIA).

The questions asking whether there is a PIA which covers the system and whether a SORN is required for the system are discrete from the narrative fields. The narrative column provides an opportunity for free text explanation why a working link is not provided. For example, a SORN may be required for the system, but the system is not yet operational. In this circumstance, answer "yes" for column (e) and in the narrative in column (f), explain that because the system is not operational the SORN is not yet required to be published.

Please respond to the questions below and verify the system owner took the following actions:

1. Have the IT security costs for the system(s) been identified and integrated into the overall costs of the investment?:

a. If "yes," provide the "Percentage IT Security" for the budget year:

2. Is identifying and assessing security and privacy risks a part of the overall risk management effort for each system supporting or part of this investment?

3. Systems in Planning and Undergoing Enhancement(s), Development, and/or Modernization - Security Table(s):

Name of System	Agency/ or Contractor Operated System?	Planned Operational Date	Date of Planned C&A update (for existing mixed life cycle systems) or Planned Completion Date (for new systems)
FNAL LQCD FY09			
FNAL LQCD FY11			
FNAL LQCD FY12			
FNAL LQCD FY13			
FNAL LQCD FY14			
TJNAF LQCD FY10			
TJNAF LQCD FY13			

4. Operational Systems - Security Table:

Name of System	Agency/ or Contractor Operated System?	NIST FIPS 199 Risk Impact level (High, Moderate, Low)	Has C&A been Completed, using NIST 800-37? (Y/N)	Date Completed: C&A	What standards were used for the Security Controls tests? (FIPS 200/NIST 800-53, Other, N/A)	Date Completed: Security Control Testing	Date the contingency plan tested
BNL LQCD, BNL Research Enclave							
FNAL LQCD, General Computing Enclave							
TJNAF LQCD, HPC/Sci-Comp Protected Zone							

5. Have any weaknesses, not yet remediated, related to any of the systems part of or supporting this investment been identified by the agency or IG?

a. If "yes," have those weaknesses been incorporated into the agency's plan of action and milestone process?

6. Indicate whether an increase in IT security funding is requested to remediate IT security weaknesses?

a. If "yes," specify the amount, provide a general description of the weakness, and explain how the funding request will remediate the weakness.

7. How are contractor security procedures monitored, verified, and validated by the agency for the contractor systems above?

Performance is monitored by the DOE site office at each laboratory, in accordance with the requirements specified in the contracts between the DOE and the respective contracting agencies. The TJNAF Site Office performs continous cyber security

performance monitoring by reviewing quarterly some aspect of the cyber security program. Users of the LQCD systems are required to take computer security training courses annually. At each laboratory, all network activity originating internally or externally is monitored.

8. Planning & Operational Systems - Privacy Table:

(a) Name of System	(b) Is this a new system? (Y/N)	(c) Is there at least one Privacy Impact Assessment (PIA) which covers this system? (Y/N)	(d) Internet Link or Explanation	(e) Is a System of Records Notice (SORN) required for this system? (Y/N)	(f) Internet Link or Explanation
BNL LQCD, BNL Research Enclave.	No	No	This system does not contain, process, or transmit personal identifying information.Because a PIA is not yet required to be completed at this time.	No	This system is not a privacy system of records
FNAL LQCD FY09	Yes	No	This system does not contain, process, or transmit personal identifying information.Because a PIA is not yet required to be completed at this time.	No	This system is not a privacy system of records
FNAL LQCD FY11	Yes	No	This system does not contain, process, or transmit personal identifying information.Because a PIA is not yet required to be completed at this time.	No	This system is not a privacy system of records
FNAL LQCD FY12	Yes	No	This system does not contain, process, or transmit personal identifying information.Because a PIA is not yet required to be completed at this time.	No	This system is not a privacy system of records
FNAL LQCD FY13	Yes	No	This system does not contain, process, or transmit personal identifying information.Because a PIA is not yet required to be completed at this time.	No	This system is not a privacy system of records
FNAL LQCD FY14	Yes	No	This system does not contain, process, or transmit personal identifying information.Because a PIA is not yet required to be completed at this time.	No	This system is not a privacy system of records
FNAL LQCD, General Computing Enclave	No	No	This system does not contain, process, or transmit personal identifying information.Because a PIA is not yet required to be completed at this time.	No	This system is not a privacy system of records
TJNAF LQCD FY10	Yes	No	This system does not contain, process, or transmit personal identifying information.Because a PIA is not yet required to be completed at this time.	No	This system is not a privacy system of records
TJNAF LQCD FY13	Yes	No	This system does not contain, process, or transmit personal identifying information.Because a PIA is not yet required to be completed at this time.	No	This system is not a privacy system of records
TJNAF LQCD, HPC/Sci-Comp Protected Zone	No	No	This system does not contain, process, or transmit personal identifying	No	This system is not a privacy system of records

8. Planning & Operational Systems - Privacy Table:

(a) Name of System	(b) Is this a new system? (Y/N)	(c) Is there at least one Privacy Impact Assessment (PIA) which covers this system? (Y/N)	(d) Internet Link or Explanation	(e) Is a System of Records Notice (SORN) required for this system? (Y/N)	(f) Internet Link or Explanation
			information.Because a PIA is not yet required to be completed at this time.		

Details for Text Options:
Column (d): If yes to (c), provide the link(s) to the publicly posted PIA(s) with which this system is associated. If no to (c), provide an explanation why the PIA has not been publicly posted or why the PIA has not been conducted.

Column (f): If yes to (e), provide the link(s) to where the current and up to date SORN(s) is published in the federal register. If no to (e), provide an explanation why the SORN has not been published or why there isn't a current and up to date SORN.

Note: Working links must be provided to specific documents not general privacy websites. Non-working links will be considered as a blank field.

Section F: Enterprise Architecture (EA) (IT Capital Assets only)

In order to successfully address this area of the capital asset plan and business case, the investment must be included in the agency's EA and Capital Planning and Investment Control (CPIC) process and mapped to and supporting the FEA. The business case must demonstrate the relationship between the investment and the business, performance, data, services, application, and technology layers of the agency's EA.

1. Is this investment included in your agency's target enterprise architecture?	Yes
a. If "no," please explain why?	
2. Is this investment included in the agency's EA Transition Strategy?	Yes
a. If "yes," provide the investment name as identified in the Transition Strategy provided in the agency's most recent annual EA Assessment.	Office of Science Lattice Quantum ChromoDynamics Computing (SC LQCD)
b. If "no," please explain why?	
3. Is this investment identified in a completed and approved segment architecture?	No
a. If "yes," provide the six digit code corresponding to the agency segment architecture. The segment architecture codes are maintained by the agency Chief Architect. For detailed guidance regarding segment architecture codes, please refer to http://www.egov.gov.	115-000

4. Service Component Reference Model (SRM) Table:
Identify the service components funded by this major IT investment (e.g., knowledge management, content management, customer relationship management, etc.). Provide this information in the format of the following table. For detailed guidance regarding components, please refer to http://www.egov.gov.

Agency Component Name	Agency Component Description	FEA SRM Service Domain	FEA SRM Service Type	FEA SRM Component (a)	Service Component Reused Name (b)	Service Component Reused UPI (b)	Internal or External Reuse? (c)	BY Funding Percentage (d)
Lattice QCD Metadata Specification	Defined schema used to describe key parameters of Lattice QCD simulations.	Back Office Services	Data Management	Data Exchange			No Reuse	1
SciDAC Lattice QCD Software Libraries	Software libraries written and maintained as part of the SciDAC Lattice QCD Computing project which optimize performance of physics applications on clusters and supercomputers.	Business Analytical Services	Knowledge Discovery	Simulation	Simulation	019-20-01-21-02-3059-00	Internal	0
Lattice QCD Simulation Hardware	The resources to perform lattice QCD simulations. Dedicated	Business Analytical Services	Knowledge Discovery	Simulation	Simulation	019-20-01-21-02-3059-00	Internal	91

4. Service Component Reference Model (SRM) Table:
Identify the service components funded by this major IT investment (e.g., knowledge management, content management, customer relationship management, etc.). Provide this information in the format of the following table. For detailed guidance regarding components, please refer to http://www.egov.gov.

Agency Component Name	Agency Component Description	FEA SRM Service Domain	FEA SRM Service Type	FEA SRM Component (a)	Service Component Reused Name (b)	Service Component Reused UPI (b)	Internal or External Reuse? (c)	BY Funding Percentage (d)
	computing hardware designed to execute lattice QCD computer codes in the most cost effective manner. Supports the LQCD hardware abstraction software libraries developed by the SciDAC Lattice Gauge Computing Project.							
SciDAC Lattice QCD Prototype Clusters	Prototype high performance clusters built as part of the SciDAC Lattice QCD Computing project at FNAL and TJNAF.	Business Analytical Services	Knowledge Discovery	Simulation	Simulation	019-20-01-21-02-3059-00	Internal	0
Lattice QCD Metadata Catalogs	Databases that relate the simulation parameters (quark masses, interaction constants, action, lattice spacing, lattice size) used to generate gauge configurations and quark propagators to data file series stored in various archives.	Digital Asset Services	Document Management	Classification			No Reuse	1
Lattice QCD Vacuum Gauge Configuration Archives	Resources for the organization and archival storage (disk and tape) of vacuum gauge configuration data generated on Lattice OCD Simulation Hardware.	Digital Asset Services	Document Management	Library / Storage			No Reuse	2
Lattice QCD Replica Catalogs	Databases that relate lattice QCD data file series to physical storage locations.	Digital Asset Services	Knowledge Management	Information Retrieval			No Reuse	1
Lattice QCD Authenticated Data and System Access	Strong authentication mechanisms (Kerberos, SSH) permitting access to Lattice QCD data and simulation hardware by authorized users.	Digital Asset Services	Knowledge Management	Information Sharing			No Reuse	1
Lattice QCD Data Transport	Mechanisms to access and transport data products to/from Lattice QCD Simulation hardware.	Digital Asset Services	Knowledge Management	Knowledge Distribution and Delivery	Simulation	019-20-01-21-02-3059-00	Internal	1
Lattice QCD hardware Remote	Resources to enable remote management of	Support Services	Systems Management	Remote Systems Control			No Reuse	1

4. Service Component Reference Model (SRM) Table:
Identify the service components funded by this major IT investment (e.g., knowledge management, content management, customer relationship management, etc.). Provide this information in the format of the following table. For detailed guidance regarding components, please refer to http://www.egov.gov.

Agency Component Name	Agency Component Description	FEA SRM Service Domain	FEA SRM Service Type	FEA SRM Component (a)	Service Component Reused Name (b)	Service Component Reused UPI (b)	Internal or External Reuse? (c)	BY Funding Percentage (d)
Management	Lattice QCD simulation hardware. Examples include mechanisms for power cycling computer hardware, reloading operating systems, data, and firmware, and resetting computer and network hardware.							
Lattice QCD Hardware Monitoring	Rresources for monitoring the status of Lattice QCD simulation hardware. Includes the gathering, storage, analysis, and presentation of machine health and status information.	Support Services	Systems Management	System Resource Monitoring			No Reuse	1

a. Use existing SRM Components or identify as "NEW". A "NEW" component is one not already identified as a service component in the FEA SRM.

b. A reused component is one being funded by another investment, but being used by this investment. Rather than answer yes or no, identify the reused service component funded by the other investment and identify the other investment using the Unique Project Identifier (UPI) code from the OMB Ex 300 or Ex 53 submission.

c. 'Internal' reuse is within an agency. For example, one agency within a department is reusing a service component provided by another agency within the same department. 'External' reuse is one agency within a department reusing a service component provided by another agency in another department. A good example of this is an E-Gov initiative service being reused by multiple organizations across the federal government.

d. Please provide the percentage of the BY requested funding amount used for each service component listed in the table. If external, provide the percentage of the BY requested funding amount transferred to another agency to pay for the service. The percentages in the column can, but are not required to, add up to 100%.

5. Technical Reference Model (TRM) Table:
To demonstrate how this major IT investment aligns with the FEA Technical Reference Model (TRM), please list the Service Areas, Categories, Standards, and Service Specifications supporting this IT investment.

FEA SRM Component (a)	FEA TRM Service Area	FEA TRM Service Category	FEA TRM Service Standard	Service Specification (b) (i.e., vendor and product name)
Simulation	Component Framework	Business Logic	Platform Independent Technologies	
Remote Systems Control	Component Framework	Business Logic	Platform Independent Technologies	
Simulation	Component Framework	Business Logic	Platform Independent Technologies	
Simulation	Component Framework	Business Logic	Platform Independent Technologies	
Classification	Component Framework	Data Interchange	Data Exchange	
System Resource Monitoring	Component Framework	User Presentation / Interface	Dynamic Server-Side Display	
System Resource Monitoring	Component Framework	User Presentation / Interface	Dynamic Server-Side Display	
Simulation	Service Access and Delivery	Access Channels	Other Electronic Channels	
Simulation	Service Access and Delivery	Access Channels	Other Electronic Channels	
Information Retrieval	Service Access and Delivery	Delivery Channels	Internet	
Knowledge Distribution and Delivery	Service Access and Delivery	Service Transport	Service Transport	
Knowledge Distribution and Delivery	Service Access and Delivery	Service Transport	Service Transport	
Knowledge Distribution and Delivery	Service Access and Delivery	Service Transport	Service Transport	

5. Technical Reference Model (TRM) Table:
To demonstrate how this major IT investment aligns with the FEA Technical Reference Model (TRM), please list the Service Areas, Categories, Standards, and Service Specifications supporting this IT investment.

FEA SRM Component (a)	FEA TRM Service Area	FEA TRM Service Category	FEA TRM Service Standard	Service Specification (b) (i.e., vendor and product name)
Information Sharing	Service Access and Delivery	Service Transport	Supporting Network Services	
Information Sharing	Service Access and Delivery	Service Transport	Supporting Network Services	
Data Exchange	Service Interface and Integration	Interoperability	Data Format / Classification	
Library / Storage	Service Platform and Infrastructure	Database / Storage	Storage	
Library / Storage	Service Platform and Infrastructure	Database / Storage	Storage	
Library / Storage	Service Platform and Infrastructure	Database / Storage	Storage	
Library / Storage	Service Platform and Infrastructure	Database / Storage	Storage	
Knowledge Distribution and Delivery	Service Platform and Infrastructure	Delivery Servers	Web Servers	
Simulation	Service Platform and Infrastructure	Hardware / Infrastructure	Local Area Network (LAN)	
Simulation	Service Platform and Infrastructure	Hardware / Infrastructure	Local Area Network (LAN)	
Simulation	Service Platform and Infrastructure	Hardware / Infrastructure	Local Area Network (LAN)	
Simulation	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	
Simulation	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	
Simulation	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	
Simulation	Service Platform and Infrastructure	Support Platforms	Dependent Platform	
Simulation	Service Platform and Infrastructure	Support Platforms	Independent Platform	
Simulation	Service Platform and Infrastructure	Support Platforms	Independent Platform	

a. Service Components identified in the previous question should be entered in this column. Please enter multiple rows for FEA SRM Components supported by multiple TRM Service Specifications

b. In the Service Specification field, agencies should provide information on the specified technical standard or vendor product mapped to the FEA TRM Service Standard, including model or version numbers, as appropriate.

6. Will the application leverage existing components and/or applications across the Government (i.e., USA.gov, Pay.Gov, etc)? No

a. If "yes," please describe.

Exhibit 300: Part II: Planning, Acquisition and Performance Information

Section A: Alternatives Analysis (All Capital Assets)

Part II should be completed only for investments identified as "Planning" or "Full Acquisition," or "Mixed Life-Cycle" investments in response to Question 6 in Part I, Section A above.

In selecting the best capital asset, you should identify and consider at least three viable alternatives, in addition to the current baseline, i.e., the status quo. Use OMB Circular A-94 for all investments and the Clinger Cohen Act of 1996 for IT investments to determine the criteria you should use in your Benefit/Cost Analysis.

1. Did you conduct an alternatives analysis for this project? Yes

a. If "yes," provide the date the analysis was completed? 12/22/2008

b. If "no," what is the anticipated date this analysis will be completed?

c. If no analysis is planned, please briefly explain why:

2. Alternative Analysis Results: * Costs in millions

Use the results of your alternatives analysis to complete the following table:

Alternative Analyzed	Description of Alternative	Risk Adjusted Lifecycle Costs estimate	Risk Adjusted Lifecycle Benefits estimate

3. Which alternative was selected by the Agency's Executive/Investment Committee and why was it chosen?

Alternative 1 was selected because it meets scientific goals in a cost effective manner. Compared to Alternatives 2 and 3, 1 is significantly less expensive because the systems are specially architected to optimally perform LQCD calculations. To that end, alternative 1 optimizes performance, cost and coupling to the user communities. Additionally. three selection criteria were utilized. (1) Achievement of the project performance goals, (2) lowest cost, and (3) the most effective collaboration between the experimental and theoretical collaborators and the systems developers. Each of the first three alternatives are scoped to achieve the scientific goals. The fourth alternative is included only for completeness, and does not meet the goals of the project. Based upon criteria 1, alternative 1, 2, or 3 is preferred. The three alternatives have very different costs as the performance of any given supercomputer varies dramatically depending on application. Consequently the actual application is used to verify the performance. Based on criteria 2, alternative 1 is preferred. Staffing needs will be approximately the same for commercial supercomputers as for the proposed system assembled from commercial components, 10% of the initial cost of the hardware per year. For the BlueGene family, it is 8%/year for support (first year free), and other operations costs are about 2%/year. Alternatives 1 and 3 would locate scientific computational facilities at laboratories where the experiments are taking place. This means that the theoretical and experimental users most interested in the performance of the systems and the results would have the maximum assurance that the computational results are closely linked to the experimental results and planning. While modern networking and collaboration tools will be used to integrate the systems at the host labs with the largely university based community, close physical proximity of the computational hardware, the systems developers, the experimentalists and theorists has been observed by the community to enhance the focus on total performance. Based on criteria 3, Alternative 1 or 3 is preferred. Conclusion: Alternative 1 is the most cost effective way of meeting the scientific objectives, and the most effective solution for community collaboration. The DME, or project, phase of this investment is complete after system acceptance; therefore, the total cost for this investment's lifecycle is the total DME ($16.88M).

a. What year will the investment breakeven? (Specifically, when the budgeted costs savings exceed the cumulative costs.) 2011

4. What specific qualitative benefits will be realized?

This investment provides two classes of benefits to the High-Energy Physics (HEP) and Nuclear Physics (NP) programs of the DOE's Office of Science (DOE-SC). One consists of direct enhancements to the science itself: the theoretical calculations are important, and in some cases essential, to a cost effective exploitation of much more expensive experiments. The FY08 Current Appropriations for the HEP and NP programs, as reported in the FY09 Congressional Budget, were $689M and $433M, respectively. Further, both fields of science receive substantial, though smaller, grants from the NSF. This should be compared to the average annual budget of this investment ($2.5M/year in FY06-08, $1.7M in FY09, and ~$3.4M/year in FY10-14). In HEP, roughly 30% of the Tevatron program at Fermilab has a direct interplay with lattice QCD calculations. Furthermore, the entire PEP-2/BaBar B physics program at SLAC, and the entire CLEO-c program at Cornell depends on lattice QCD for a full understanding of the experimental measurements. The whole suite of measurements and calculations are worth much more together than in isolation, so one must conclude that the return on investment (ROI) for HEP is at least five-fold, possibly even twenty-fold. In NP, the situation is similar. A significant development at BNL's Relativistic Heavy-Ion Collider is to search for the critical point of the QCD phase transition. Lattice QCD calculations indicate that this search is within RHIC's reach; RHIC would not proceed without this guidance. At TJNAF a key motivation for the upgraded accelerator is the search for hybrid mesons and gluonic excitations, states whose theoretical foundation rests on lattice QCD. One concludes again that the ROI for NP is at least five-fold, possibly even twenty-fold. With such high rates of return, it is safe to view the calculations as necessary for the DOE to do a sensible deployment of the experiments. But one should then ask whether other computing facilities could do the job. Indeed, all of the experiments in question have computing budgets that rival or surpass this project. However, their

communications networks are ill-suited to the data-structures of lattice QCD, with a mismatch in efficiency of nearly a factor of 10. In the past, LQCD has been carried out at supercomputer centers. Compared to this project's computing facilities, the costs at supercomputer centers are two to eight times as much to deliver the same amount of dedicated lattice QCD computing.

5. Federal Quantitative Benefits
What specific quantitative benefits will be realized (using current dollars) Use the results of your alternatives analysis to complete the following table:

	Budgeted Cost Savings	Cost Avoidance	Justification for Budgeted Cost Savings	Justification for Budgeted Cost Avoidance
PY - 1 2007 & Prior			Does not apply to R&D-based High Performance Computers that utilize unique and cutting edge technologies.	Cost reduction realized through procurement bidding process
PY 2008			Does not apply to R&D-based High Performance Computers that utilize unique and cutting edge technologies.	From alternatives analysis, estimated cost avoidance realized by procuring compute cluster instead of IBM Blue Gene supercomputer.
CY 2009			Does not apply to R&D-based High Performance Computers that utilize unique and cutting edge technologies.	From alternatives analysis, estimated cost avoidance realized by procuring compute cluster instead of IBM Blue Gene supercomputer.
BY 2010			Does not apply to R&D-based High Performance Computers that utilize unique and cutting edge technologies.	From alternatives analysis, estimated cost avoidance realized by procuring compute cluster instead of Cray supercomputer.
BY + 1 2011			Does not apply to R&D-based High Performance Computers that utilize unique and cutting edge technologies.	From alternatives analysis, estimated cost avoidance realized by procuring compute cluster instead of Cray supercomputer.
BY + 2 2012			Does not apply to R&D-based High Performance Computers that utilize unique and cutting edge technologies.	From alternatives analysis, estimated cost avoidance realized by procuring compute cluster instead of Cray supercomputer.
BY + 3 2013			Does not apply to R&D-based High Performance Computers that utilize unique and cutting edge technologies.	From alternatives analysis, estimated cost avoidance realized by procuring compute cluster instead of Cray supercomputer.
BY + 4 2014 & Beyond			Does not apply to R&D-based High Performance Computers that utilize unique and cutting edge technologies.	From alternatives analysis, estimated cost avoidance realized by procuring compute cluster instead of Cray supercomputer.
Total LCC Benefit			LCC = Life-cycle Cost	

6. Will the selected alternative replace a legacy system in-part or in-whole? No

a. If "yes," are the migration costs associated with the migration to the selected alternative included in this investment, the legacy investment, or in a separate migration investment?

b. If "yes," please provide the following information:

5b. List of Legacy Investment or Systems

Name of the Legacy Investment of Systems	UPI if available	Date of the System Retirement

Section B: Risk Management (All Capital Assets)

You should have performed a risk assessment during the early planning and initial concept phase of this investment's life-cycle, developed a risk-adjusted life-cycle cost estimate and a plan to eliminate, mitigate or manage risk, and be actively managing risk throughout the investment's life-cycle.

1. Does the investment have a Risk Management Plan? Yes

a. If "yes," what is the date of the plan? 8/29/2008

b. Has the Risk Management Plan been significantly changed since last year's submission to OMB? No

c. If "yes," describe any significant changes:

2. If there currently is no plan, will a plan be developed?

a. If "yes," what is the planned completion date?

b. If "no," what is the strategy for managing the risks?

3. Briefly describe how investment risks are reflected in the life cycle cost estimate and investment schedule:

In each year of the investment, additional computing capacity is added at either FNAL or TJNAF to meet the needs of the scientific program. The cost and schedule in the investment plan are based upon the solid trend, observed over the last seven years, of the performance of lattice QCD codes improving on commodity cluster systems. Industry fluctuations in the release schedules of improved components, in the price of existing and new components, and in the performance of new components, result in cost and schedule risks. To mitigate these risks,historical costing trends are used to project investment costs. In addition, the project bases the projected performance and costs of the computer systems using a longer 24 month Moore's Law. Annual external reviews of the project by the DOE examine the achieved performance of each year's LQCD system, and the proposed architecture and projected performance of the next planned system. Although this investment is exempt from using an ANSI-compliant EVMS (per DOE Order 413.3), we actively manage cost, schedule, and performance as a key element of risk management.

Section C: Cost and Schedule Performance (All Capital Assets)

EVM is required only on DME portions of investments. For mixed lifecycle investments, O&M milestones should still be included in the table (Comparison of Initial Baseline and Current Approved Baseline). This table should accurately reflect the milestones in the initial baseline, as well as milestones in the current baseline.

1. Does the earned value management system meet the criteria in ANSI/EIA Standard-748? No

2. Is the CV% or SV% greater than +/- 10%? (CV%= CV/EV x 100; SV%= SV/PV x 100) No

a. If "yes," was it the CV or SV or both?

b. If "yes," explain the causes of the variance:

c. If "yes," describe the corrective actions:

3. Has the investment re-baselined during the past fiscal year? No

a. If "yes," when was it approved by the agency head?

4. Comparison of Initial Baseline and Current Approved Baseline

Complete the following table to compare actual performance against the current performance baseline and to the initial performance baseline. In the Current Baseline section, for all milestones listed, you should provide both the baseline and actual completion dates (e.g., "03/23/2003"/ "04/28/2004") and the baseline and actual total costs (in $ Millions). In the event that a milestone is not found in both the initial and current baseline, leave the associated cells blank. Note that the 'Description of Milestone' and 'Percent Complete' fields are required. Indicate '0' for any milestone no longer active.

Milestone Number	Description of Milestone	Initial Baseline		Current Baseline				Current Baseline Variance		Percent Complete
		Planned Completion Date (mm/dd/yyyy)	Total Cost ($M) Estimated	Completion Date (mm/dd/yyyy)		Total Cost ($M)		Schedule (# days)	Cost ($M)	
				Planned	Actual	Planned	Actual			
1	FY06 DME-Computer architecture planning for FY07 complete and reviewed by external DOE committee (Table I.C.1 lines 6-8). (Not in initial baseline)		$0.000000	6/30/2006	5/26/2006	$0.030000	$0.030000	35	$0.000000	100%
2	FY06 DME-Initial (submission in 2004): Procurement and deployment of 1.8 teraflops (sustained) system at either FNAL or TJNAF. Current: Procurement and deployment of FY06 system at FNAL totaling 1.8 teraflops (sustained) (Table I.C.1 line 10)	3/30/2006	$1.000000	9/30/2006	9/30/2006	$1.565000	$1.510000	0	$0.055000	100%
3	FY06 DME-Procurement and deployment of FY06 system at TFNAF totaling 0.2 teraflops (sustained) (Table I.C.1 line 9) (Not in initial baseline)		$0.000000	6/30/2006	5/1/2006	$0.280000	$0.280000	60	$0.000000	100%
4	FY06 SS-Initial (submission in 2004): 7 Teraflops-years computing delivered to LQCD community during FY06. Current: 6.2 TFlops-years computing delivered to LQCD community during FY06. (Table I.C.1 lines 6-8)	9/30/2006	$1.000000	9/30/2006	10/7/2006	$0.625000	$0.600000	-7	$0.025000	100%
5	FY07 DME-Computer architecture planning for the FY08 procurement complete and reviewed by external DOE committee. (Table I.C.1 line 3) (Not in initial baseline)		$0.000000	6/30/2007	5/15/2007	$0.030000	$0.030000	46	$0.000000	100%
6	FY07 DME-Initial (submission in	3/30/2007	$0.900000	12/30/2007	10/17/2007	$1.676000	$1.200000	74	$0.476000	100%

4. Comparison of Initial Baseline and Current Approved Baseline

Complete the following table to compare actual performance against the current performance baseline and to the initial performance baseline. In the Current Baseline section, for all milestones listed, you should provide both the baseline and actual completion dates (e.g., "03/23/2003"/ "04/28/2004") and the baseline and actual total costs (in $ Millions). In the event that a milestone is not found in both the initial and current baseline, leave the associated cells blank. Note that the 'Description of Milestone' and 'Percent Complete' fields are required. Indicate '0' for any milestone no longer active.

Milestone Number	Description of Milestone	Initial Baseline		Current Baseline				Current Baseline Variance		Percent Complete
		Planned Completion Date (mm/dd/yyyy)	Total Cost ($M) Estimated	Completion Date (mm/dd/yyyy)		Total Cost ($M)		Schedule (# days)	Cost ($M)	
				Planned	Actual	Planned	Actual			
	2004): Procurement and deployment of 2.2 teraflops (sustained) system at either FNAL or TJNAF. Current: Procurement and deployment of FY07 system at TJNAF totaling 2.9 teraflops (sustained) (Table I.C.1 line 11)									
7	FY07 SS-Security controls and contingency plan testing complete at FNAL, BNL and TJNAF.		$0.000000	8/31/2007	8/31/2007	$0.090000	$0.050000	0	$0.040000	100%
8	FY07 SS-Teraflops-years aggregate computing delivered to LQCD community during FY07. (Table I.C.1 line 5)	9/30/2007	$1.100000	9/30/2007	9/30/2007	$0.704000	$0.920000	0	-$0.216000	100%
9	FY08 DME-Computer architecture planning for the FY09 procurement complete and reviewed by external DOE committee. (Table I.C.1 line 3) (Not in initial baseline)		$0.000000	6/30/2008	5/14/2008	$0.030000	$0.030000	47	$0.000000	100%
10	FY08 SS-Security controls and contingency plan testing complete at FNAL, BNL and TJNAF.		$0.000000	8/31/2008	8/31/2008	$0.090000	$0.030000	0	$0.060000	100%
11	FY08 DME-Initial (FY04 submission): Procurement and deployment of 3 TFP (sustained) system at either FNAL or TJNAF. Current FY09: Procurement and deployment of 4.2 TFP at FNAL. Planned lease payment placed	3/30/2008	$0.800000	12/30/2008	1/5/2009	$1.719000	$1.660000	-6	$0.059000	100%

4. Comparison of Initial Baseline and Current Approved Baseline

Complete the following table to compare actual performance against the current performance baseline and to the initial performance baseline. In the Current Baseline section, for all milestones listed, you should provide both the baseline and actual completion dates (e.g., "03/23/2003"/ "04/28/2004") and the baseline and actual total costs (in $ Millions). In the event that a milestone is not found in both the initial and current baseline, leave the associated cells blank. Note that the 'Description of Milestone' and 'Percent Complete' fields are required. Indicate '0' for any milestone no longer active.

Milestone Number	Description of Milestone	Initial Baseline		Current Baseline				Current Baseline Variance		Percent Complete
		Planned Completion Date (mm/dd/yyyy)	Total Cost ($M) Estimated	Completion Date (mm/dd/yyyy)		Total Cost ($M)		Schedule (# days)	Cost ($M)	
				Planned	Actual	Planned	Actual			
	08/26/08, delivery completed on Oct 28.									
12	FY08 SS-Teraflops-years aggregate computing delivered to LQCD community during FY08. (Table I.C.1 line 3) Actual costs are as of 04/30/08.	9/30/2008	$1.200000	9/30/2008	9/30/2008	$0.661000	$0.700000	0	-$0.039000	100%
13	FY08 DME-Evaluate costs for operations of LQCD hardware for FY10 forward for a new project proposal or for extension of this project (Not in initial baseline). Planned lease payment placed 08/26/08, delivery completed on Oct 28.		$0.000000	9/30/2008	3/3/2008	$0.000000	$0.070000	211	-$0.070000	100%
14	FY09 DME-Computer architecture planning for the FY10 procurement complete and reviewed by external DOE committee. (Table I.C.1 line 3)		$0.000000	6/30/2009		$0.000000	$0.000000		$0.000000	0%
15		9/30/2009	$0.800000	6/30/2009		$0.798000	$0.107000		-$0.003260	13%
16	FY09 SS-Security controls and contingency plan testing complete.		$0.000000	9/30/2009		$0.090000	$0.031000		$0.006800	42%
17	FY09 SS-Teraflops-years aggregate computing delivered to LQCD community during FY09. (Table I.C.1 line 1)	9/30/2009	$1.200000	9/30/2009		$0.812000	$0.330000		$0.011040	42%
18			$0.000000	6/30/2010		$2.073000	$0.000000		$0.000000	0%
19	FY10 DME-Computer architecture planning for the FY11 procurement complete and reviewed by external DOE		$0.000000	6/30/2010		$0.030000	$0.000000		$0.000000	0%

4. Comparison of Initial Baseline and Current Approved Baseline

Complete the following table to compare actual performance against the current performance baseline and to the initial performance baseline. In the Current Baseline section, for all milestones listed, you should provide both the baseline and actual completion dates (e.g., "03/23/2003"/ "04/28/2004") and the baseline and actual total costs (in $ Millions). In the event that a milestone is not found in both the initial and current baseline, leave the associated cells blank. Note that the 'Description of Milestone' and 'Percent Complete' fields are required. Indicate '0' for any milestone no longer active.

Milestone Number	Description of Milestone	Initial Baseline		Current Baseline				Current Baseline Variance		Percent Complete
		Planned Completion Date (mm/dd/yyyy)	Total Cost ($M) Estimated	Completion Date (mm/dd/yyyy)		Total Cost ($M)		Schedule (# days)	Cost ($M)	
				Planned	Actual	Planned	Actual			
	committee. (Table I.C.1 line 9)									
20	FY10 SS-Security controls testing and contingency plan review complete.		$0.000000	8/31/2010		$0.000000	$0.000000		$0.000000	0%
21			$0.000000	9/30/2010		$1.071000	$0.000000		$0.000000	0%
22			$0.000000	9/30/2011		$2.079000	$0.000000		$0.000000	0%
23	FY11 DME-Computer architecture planning for the FY12 procurement complete and reviewed by external DOE committee. (Table I.C.1 line 11)		$0.000000	9/30/2011		$0.030000	$0.000000		$0.000000	0%
24	FY11 SS-Security controls testing and contingency plan review complete.		$0.000000	8/31/2011		$0.000000	$0.000000		$0.000000	0%
25			$0.000000	9/30/2011		$1.207000	$0.000000		$0.000000	0%
26			$0.000000	6/30/2012		$2.086000	$0.000000		$0.000000	0%
27	FY12 DME-Computer architecture planning for the FY13 procurement complete and reviewed by external DOE committee. (Table I.C.1 lines 13 and 14)		$0.000000	6/30/2012		$0.030000	$0.000000		$0.000000	0%
28	FY12 SS-Security controls testing and contingency plan review complete.		$0.000000	8/31/2012		$0.000000	$0.000000		$0.000000	0%
29			$0.000000	9/30/2012		$1.363000	$0.000000		$0.000000	0%
30			$0.000000	6/30/2013		$1.073000	$0.000000		$0.000000	0%
31			$0.000000	6/30/2013		$1.073000	$0.000000		$0.000000	0%
32	FY13 DME-Computer architecture planning for the FY14 procurement complete		$0.000000	6/30/2013		$0.030000	$0.000000		$0.000000	0%

4. Comparison of Initial Baseline and Current Approved Baseline

Complete the following table to compare actual performance against the current performance baseline and to the initial performance baseline. In the Current Baseline section, for all milestones listed, you should provide both the baseline and actual completion dates (e.g., "03/23/2003"/ "04/28/2004") and the baseline and actual total costs (in $ Millions). In the event that a milestone is not found in both the initial and current baseline, leave the associated cells blank. Note that the 'Description of Milestone' and 'Percent Complete' fields are required. Indicate '0' for any milestone no longer active.

Milestone Number	Description of Milestone	Initial Baseline		Current Baseline				Current Baseline Variance		Percent Complete
		Planned Completion Date (mm/dd/yyyy)	Total Cost ($M) Estimated	Completion Date (mm/dd/yyyy)		Total Cost ($M)		Schedule (# days)	Cost ($M)	
				Planned	Actual	Planned	Actual			
	and reviewed by external DOE committee. (Table I.C.1 line 16)									
33	FY13 SS-Security controls testing and contingency plan review complete.		$0.000000	8/31/2013		$0.000000	$0.000000		$0.000000	0%
34			$0.000000	9/30/2013		$1.321000	$0.000000		$0.000000	0%
35			$0.000000	6/30/2014		$2.125000	$0.000000		$0.000000	0%
36	FY14 SS-Security controls testing and contingency plan review complete.		$0.000000	8/31/2014		$0.000000	$0.000000		$0.000000	0%
37			$0.000000	9/30/2014		$1.584000	$0.000000		$0.000000	0%
Project Totals		**9/30/2009**	**$8.000000**	**9/30/2014**	**1/5/2009**	**$26.375000**	**$7.578000**	**2094**	**$0.405712**	**30.27%**